Senses of liveness for digital times

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SENSES OF LIVENESS FOR DIGITAL TIMES

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by Sally Jane Norman

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Hallo, Kia ora, bonjour, greetings. I'd like to thank IETM's Secretary General Nan van Houte, and Jeffrey Meulman from the Dutch Theatre Festival, for the honour of being invited to give the introductory keynote at this prestigious event. 'Live arts in digital times' is a subject I've long been engaged with, through theory and practice in settings ranging from academic and cultural institutions to more or less ad hoc experimental platforms. So this is an exciting challenge. It's also been intriguing thinking back to IETM 2000 in Prague, as moderator of the performance and new media working group with Oslo-based artists Amanda Steggell and Per Platou, and French producer Richard Castelli. Many questions we discussed then are still relevant, including digital literacies; the spiraling evolution and obsolescence of technical resources; and the online formation of new cultural communities. But of course there have also been significant transformations since 2000, on which I'd like to focus.

Performance has always been for me an exciting territory from which to explore evolving links between art and science, culture and technology, so this lecture will be a subjective account of what I see as key contextual issues to feed into our exchanges, which will be well supported by recent IETM publications - Corina Bucea and Maude Bonenfant's 'Who's afraid of the digital', and Julie Burgheim's 'Mapping' document.

I'm using the word 'senses' in the plural in my title, to emphasise the fact that our ability to see constantly multiplying, diversifying phenomena as LIVE depends on radical extensions to our own senses - through increasingly digitally enriched prostheses, that make meaningful data that would otherwise be incomprehensible, imperceptible. Our extended senses or 'exosomatic organs' (Robert Innis) include PDAs, programmable hearing aids, and visual devices like Google Glasses, or Google's newly patented camera equipped contact lenses. In short, they are systems that allow us to apprehend and process the world differently , and are revealing haunting realities that were previously inaccessible 'dark matter'.

This process of integrating and developing new senses, and new ways of making sense, is itself part of a long story, as technologies and activities have co-evolved ever since we managed to stand upright, empowering ourselves to grasp and act on our surroundings. Paleoanthropologists like André Leroi-Gourhan have taught us how independent social acts cluster to gradually form operational chains, producing the concrete artefacts and systems that make up our technologies. As a result, these technologies incorporate strata of human behaviour: they are sedimented memories of activities, while the practices that shaped them are revived and expanded with each fresh use. As a species drawn to making things, including forever re-making ourselves, we're consequently inextricably physically and cognitively intertwined with the technologies that scaffold the world in which we live. Instead of pitting the natural against the artificial, or the natural against the cultural, as we've done for centuries, this intertwinement demands more complex, even paradoxical approaches, summed up by Edgar Morin's delightfully circuitous declaration that humans are cultural by nature and natural by culture.

Digital technologies, notably in the ways they change our ideas of scale, add to this tangle of human liveness, or live humanness, with our environment. In these digital times, marked by transformational research into fields like gravitational waves and quantum computing, we're also encoding programming languages into the live cell DNA of bacteria to serve as environmental monitors. What's more, we're using DNA for high density archiving: having recently managed to store a 5 megabyte book in a single picogramme of DNA (a millionth of a millionth of a gram) - a 10 billion fold increase over a CD's capacity - we're investigating ways to record dynamic, multimodal, storage hungry media using this same miraculous, yet literally basic, material. For those of us coming from performance, it may seem strangely recursive to be using DNA, often referred to as the building blocks of life, to enfold originary vitality and emerging textualities, and thus store information and traces of human experience. But this is just one of the countless digital-cum-technological developments that call for us to rethink our understandings of live arts.

SALLY JANE NORMAN

Sally Jane Norman joined the University of Sussex in 2010 as Professor of Performance Technologies, steering a major performing arts refurbishment project until her engagement in 2015 as founding Co-Director of the Sussex Humanities Lab, where she leads the Digital Performance research strand. Her publications on liveness and performing arts, in areas ranging from ancient theatre to digital networks, are strongly informed by her experimental practice. She is regularly engaged in international cultural policy and research consultation and lobbying initiatives.

Cultural identities and memories are built up cumulatively: in their concrete manifestations, as practical implements, they are repositories of collective actions as mentioned earlier. Or they may be concretely manifest as implements for inscriptive practices - this is the case, for example, with tools we use for weaving, drawing or writing, tools that can convey experience in various symbolic forms, as indirect signifiers. Languages, a key social medium for humans, have gradually been refined as symbolic systems, and made discrete and portable by grammatical and logical structures, with mechanical reproducibility of textual and graphic materials further facilitating their transmission. Twentieth century digitisation of words, images, and sounds has made them still more reproducible and open to manipulation. Their transportability and malleability is the result of unprecedented standardisation, by reduction to the binary bits of computing. Because we're finding ways to digitise all kinds of objects and actions, digitally encoded phenomena are both incredibly diverse in their deployments, and extremely normalised in terms of their constituents. It's this reduction to code that makes digital creations so apparently ageless: like forests of synthetic trees with no growth rings, they seem ever new.

Yet there's something misleading about the claimed timelessness of the digital, because the hard and software, the operating systems and programmes that actually make data usable, are governed by their own internal 'clocks' and processing capacities. Just as we need a pen to write and a frame to weave, we need these materialised temporal frameworks in order to tap the potential of digital data. To paraphrase Hamlet, time in our digital times seems to be curiously out of joint. The supposed transcendence of the digital is also undermined by our all too frequent need to discard or 'retire' our computers as polluting e-waste. Like J.F.Sebastian in Bladerunner, the genetic designer afflicted with progeria, our digital platforms are doomed to accelerated aging and early death, or obsolescence. So there's a

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crucial gap between platonic visions of the digital, drifting up in the eternal cloud, and its material realities that contribute substantially to the Anthropocene's growing environmental nightmare.

This gap is ingeniously addressed by live performance artist Jonathan Reus, whose IMac Music (created at the Studio for Electro-Instrumental Music, Amsterdam, in 2012) consists of live-hacking recycled G3 computer circuitry, displaying visual distortions on-screen while playing the circuits with fine-tipped sound amplifying probes to reveal the acoustic signatures of the computational processes. The work demands a special kind of digital literacy: encountering visual stacks and sonic triggers that were part of our everyday activity, sometimes for years on end, heightens our awareness of the techno-ecological race we're caught up in, making obsolescence a powerful poetic resource.

A characteristic of digital times that affects our senses of liveness is the fact that growing numbers of technologies created to serve us, operate well beyond our knowledge and understanding, therefore our control. This of course is why we built them in the first place: research in climatology, epidemiology, demographics or other critical areas requiring synthesis of massive, heterogeneous, datasets demands computational power that far exceeds capabilities of the human brain. New sites of scholarship are opening up in the digital humanities, through computerised integration of previously unconnectable resources.
Advanced digital possibilities allow non-profit, social enterprises to help underprivileged populations, like Canadian Nia Technologies' low cost, rapidly prototyped 3D orthotic and prosthetic devices for disabled children in developing countries. Exploits like these (and DeepMind's AlphaGo victory over the world Go champion), which testify to our tendency to constantly defy our own limits, can be beneficial, if only to minimise or mitigate the damage we've already inflicted on the world and on each other.

Digital times are times for new kinds of collective reckoning, of rethinking socialities and ethics. To quote Joanna Zylinska, "Ethics is a mode of human locatedness in the world which involves a recognition of the processual and unstable nature not only of any such locatedness but also of the human (that is) thus located. (...) ethics is a historically contingent human mode of becoming in the world, of becoming different from the world, and of narrating and taking responsibility for the nature of this difference." Zylinska evokes our human responsibility to account for the modes of relationality arising from our individual positions at a given moment. If live arts are characterised by their prerogative to creatively frame and play out different forms of liveness - live beings and actions - then surely this makes them the vector par excellence for creatively projecting different modes of relationality, and propagating forms of affective contagion (Nigel Thrift) that inspire us to think otherwise, and to think about others?

Technological developments in our digital times throw human status and values thoroughly into question. We're encoding and decoding the genome, planning cosmic excursions (while Jet Propulsion Lab's mixed reality facilities bring us tours of Mars guided by ex-moon walker Buzz Aldrin and Martian rover driver Erisa Hines); each day we learn more about the vast fabric of activities that challenge what it has previously meant, and now means, to be human. The RoboEarth project (European Union funded, 2010-14), dedicated to building a world wide web for robots where they can autonomously leverage their collective skills and experience, like a benign Skynet, has taken us from the Internet of Things (MIT project of 1999) to the Internet of Things that Control Things. What we don't know, is whether humans might eventually feature amongst things to be controlled (we don't know what we don't know - to borrow Donald Rumsfeld's in/ famous quote).

The grey area of known and unknown agency in our increasingly hybridised, humachine systems was enthrallingly staged at the International Conference on Live Coding (ICLC) last year in Leeds, by a musician-coder trio made up of Shelly Knotts, Holger Ballweg, and Jonas Hummel. Their competitive performance called Flock is based on election battleground principles: the three performers attempt to win votes from an artificial population: the more votes a performer wins, the more prominent their audio in the final mix. The voting mechanism consists of feature trackers that follow the performers' audio inputs, and artificial intelligence (AI) agents with preferences and voting rights who regularly 'vote' for the audio input whose features best map to their preferences. It's not clear in the performance - as in many real political settings - whether human input is convincing the AI society to flock to their musical proposal, or whether the humans are rather chasing the agents' preferences to win votes. Because the humans can't predict how agents will react or move within the network, they can either aim for mass appeal with relatively neutral proposals, or try to find a radical niche which strongly differentiates them from other performers. A performance no doubt worth restaging, given imminent electoral stakes and the surrounding chaos - for example the UK Europe referendum, or the US presidentials. Like Jonathan Reus's theatre of machine anatomy, live coding demands specific kinds of engagement from its audiences. More than actual coding literacy, which suggests serious barriers to this engagement, it demands willingness to try and sense the dramatic competition between autonomously evolving algorithms and human interventions. In Flock, simplicity of the underlying principles and of the corresponding visual display, energetic presence of the three contenders, and perceptible changes to sonic materials, make the agonistic encounter relatively easy to understand.

In her obsession with politics and code, Shelly Knotts thus whimsically uses - and abuses - the normative pressures of large-scale opinion-monitoring machines to inspire a quirky drama.

Unintended consequences and glitches in computational systems show just how much our digital times differ from anything we've known before - or not known we've not known: the high frequency trading algorithms behind the trillion dollar stock market crash in May 2010 are an example of runaway agents over which humans have lost control. It's in contexts like these, that complexity scientist Samuel Arbesman speaks of "machines interacting with each other, essentially as algorithms trading among themselves, with humans on the sidelines." This isn't science fiction: over 2.5 quintillion bytes of data is produced daily (2015 estimate), 90% of the world's digital data last year was created in the two preceding years, and volumes of stored data are growing more than four times faster than the world economy.

In attempts to turn these incomprehensible facts into something that can make sense to humans, the French RYBN artists' collective bases its immersive performance installations on real-time archaeology of data flows, mining web resources that show the socio-economic and geopolitical imbalance exacerbated by proliferating and impenetrable digital data, like the 2010 crash that inspired their Antidatamining VII - Flashcrash (2011), commissioned by Raisons d'agir 2011 in Poitiers (a festival edition entitled "Faire et défaire la mondialisation"). Publicly available data from Nanex, a market analysis company critical of high frequency trading, and from Yahoo! Finance, are rendered as multichannel surround sound that conveys streams of activity corresponding to eight critical markets located around the New York Stock Exchange. Sound is intensified by high frequency bursts and pulses, bass rumblings, and variations in resonance; its staging in the planetarium of the Espace Mendès France added to the work's immersive impact, and its ability to convey a sense of superhuman, quasi-cosmic complexity.

Big data as we know isn't just being generated by large conglomerates like NASA, or the Stock Exchange, or CERN, or Amazon. In countries like the Netherlands, and those most of us here are probably from, it's being permanently harvested from aspects of our lives we prefer to consider as private: information scraped from all kinds of individual online identities is aggregated for consumer monitoring, while two decades of quantified-self practices - life-logging, self-tracking, biometric self-surveillance - are likewise more specifically feeding huge databases. These may be exploited in socially beneficial ways (as in population health studies), but they are often appropriated and repurposed by profit-seeking corporations to lure us into unconscious consumerism. I want to insist on these yawning gaps between individual profiles and anonymous, aggregated agents, and between human response times, and those of our posthuman machines.

Because how we experience these gaps conditions our ability to imaginatively tune to them (or alternatively, to come up with compelling, creative ways to resist and block them out). How we deal with these questions determines whether and how we might, in Bernard Dort's words, find ways to anchor what we call theatre more richly and diversely in contemporary society, instead of simply seeking to reflect the current world in the too narrow mirror of the traditional stage. Dort suggests that theatres are ideally laboratories allowing all kinds of people to freely confront their experiences and representations of reality.

Attempts to artistically build on and with the rhythms of computational and human dynamics, with their macro and micro temporalities, can't work without taking into account a context marked by the ferocious commodification of human attention. This was already omnipresent in pre-digital mass media - as illustrated by Jacques Attali's observation in 1977 that record collectors spending all their time earning money to buy recordings of other people's time, were not only losing their own time in the process, but also time to enjoy the artists' time they'd purchased. This sounds grotesque, but it's been made even worse or more perverse by social networks which were supposedly designed to enhance communication amongst their content makers, but which in reality aim to capture maximum shares of user attention, to subject them to opinion-shaping consumerist trends. Stockpiling people's time to favour the insidious traps of the experience economy (Pine and Gilmour), affects all of us, directly or indirectly. It also raises particularly tricky questions in the world of performance, whose defining feature for many is its stubborn immediacy and irreducible embodied presence, thus its resistance to permanence, to normativity, and ultimately to being trace-able. As we try to devise means to record fragile, culturally vital evidence of live art, how can we adopt an ethical approach so that we're not simply stockpiling stuff for tomorrow's forensic experts or art investors, or systematically deferring a future that is just around the corner as long as we don't dare to stop to savour the present? And when live art is itself loaded with complex technological legacies that themselves convey sedimented strands of past practices, these questions become still more complex. I don't have answers, but like many of us here consider these issues urgent and important, and this place as a good place to discuss them.

Engineer Danny Hillis, co-founder of Thinking Machines Corporation, suggests that with the onslaught of thinking machines we have built our own jungle, which has a life of its own. So how can we cope with the jungle? If the alien life we've engendered can't be navigated by rational scientific instrumentation and calculations, then creative powers are needed more than ever to map paths through unknown terrain. At an early nineties edition of Siggraph, psychologist Ron Pickett, who was analyzing sensorimotor activity in virtual reality systems, told us how Prussian explorer Alexander von Humboldt had to mobilise all his senses when journeying into uncharted depths of the Americas at the turn of the nineteenth century (1799): to describe flora and fauna that couldn't be conveniently stored in a collector's tin, von Humboldt looked at, listened to, touched, smelled, and tasted species he encountered (he was reported dead on three occasions). His multisensory exploration produced compellingly live and surprisingly durable mappings of then unimaginable territories and their inhabitants. Pickett suggests that we need to respond in similar ways to the demands of multimodal digital territories, mobilising our entire sensorium, all our cognitive and perceptive skills, our speculative and empirical aptitudes, to lay the foundations for a 'new naturalism' fit for our digital times.

Let me indulge for a moment in a low or rather no-tech predigital flashback, not to von Humboldt's nineteenth century, but to the mid-twentieth. Picture a community theatre in a small village in Titahi Bay, Aotearoa/ New Zealand, full of usually rowdy children hushed and absorbed by a man standing on stage, arms stretched wide, who orders his pet flea to jump: from the left hand to the right, the flea traces a spectacular arc indicated by its trainer's head movement. A hundred childrens' heads follow in unison. Asked to encourage the flea with our applause, we loudly oblige. The trainer orders the flea to jump back from right to left; we again mirror his head movement, feeling part of the action. Faster, he orders, and head movements quicken; higher, he orders, and flea and audience oblige. Higher again, and all heads jerk upwards. And like him, we stop, necks craned, and wait. He tries to coax the flea back down, apologising for treating it badly, but it remains stubbornly up in the grid. He sighs, shakes his head, reluctantly tells us the show's over, and exits grumbling, with a last scowling upward glance.

For me, this naive memory is a reminder of how freely performance can solicit participation using a host of different ploys: in this instance, once we've entered into the performer's world, we're enthusiastic admirers of the flea trainer's invisible champion. We're familiar with innumerable modes of engagement, from playful suspension of disbelief to use of robustly structured alienation or Entfremdungseffekt techniques, or the explosions of contemporary post-dramatic performance. Our cultural memories along with our technologies and artefacts are layered and ready to be reactivated: buried traditions can be effectively crafted and instantly brought back to life, to resurge and combine with recent practices. The very liveness of performance as a medium quickens these temporal and mnemonic strands, weaving them to build its uniquely living patterns and rhythms.

Perhaps in our giddily evolving digital times it's time to look back to moments in the past when we've productively synthesised diverse, often incompatible ways of knowing, thinking, and expressing. Moments when virtual protagonists have been enthralling sparring partners for embodied human agents, as with Shelly Knott's Flock or the flea trainer from my childhood community hall. Since our digital times are generating phenomena at scales that escape our usual reasoning abilities, we must in turn generate imaginative ways of dealing with them, of building new relations with them, including by resuscitating bygone practices that remain latent cultural forces. If myths are simplified representations of complex unfoldings in the world, then computational systems have their own myth-making contributions to offer our creative ecosystems, in synergy with older traditions. They can become part of our ancient legacy of hermeneutics, of collectively creating and transmitting weird and wonderful interpretations of phenomena through 'fabulatory epistemology' (Louis Bec). Alongside tales of our heroic encounters with terrestrial and oceanic monsters, stories of interplanetary and interstellar voyages creatively account for our relations to the cosmos, to deal with its otherwise impossible scale. Movements in and movements of our emerging, quasi-living data spaces, hovering between computation and technologies that use, rove into, and trip our cells and atoms, demand the invention of new languages that can reconcile bodies and spectres, signals and signs, life-lines and codes - in short, poetic ecologies that pursue Artaud's dream of theatre as this "crucible of fire and real meat where, by an anatomical trampling of bone, limbs and syllables, bodies are renewed."

Perhaps live art attempts to relate to our digital times - not hubristically trying to resolve their complexity , but instead to stage them in all their agonistically plural splendour - might learn something from the tricks of scale that gave us the ancient Egyptians' Pharoah's barque, or the Polynesian sun-taming cunning of Maui, to reinvent richly hybrid, irreducibly non-normative, human (and posthuman?) live arts for the 21st century.

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Titahi Bay Little Theatre in Porirua, Aotearoa, a repurposed recreation hall built for US Marines in 1942 and recently slated for demolition, remains a powerful source of performance memories including those of the anonymous, unforgettable flea trainer.

NB: this transcript corresponds closely to the April 14th keynote, though integrates a few elements removed from the lecture to respect the IETM launch schedule.